

Conservation and Transformation of Energy

PS-6 The student will demonstrate an understanding of the nature, conservation, and transformation of energy.

PS-6.8 Represent an electric circuit by drawing a circuit diagram that includes the symbols for a resistor, switch, and voltage source.

Taxonomy Level: 2.1-B Understand Conceptual Knowledge

Key Concepts:

Circuits: parallel circuit, series circuit







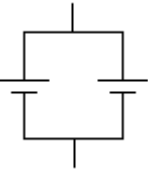

Circuit components: resistor, switch, wire, light bulb

Voltage sources: chemical cell, battery with cells in series, battery with cells in parallel, generator

Previous/Future knowledge: In the 4th grade students summarized the functions of the components of complete circuits (including wire, switch, battery, and light bulb) (4-5.6), and also illustrated the path of electric current in series and parallel circuits (4-5.7). In Physical Science the students will expand the concepts of circuits by representing them with circuit diagrams.

It is essential for students to

- Understand the components that can be used in an electric circuit;
- Be able to represent the components of a complete circuit with symbols:

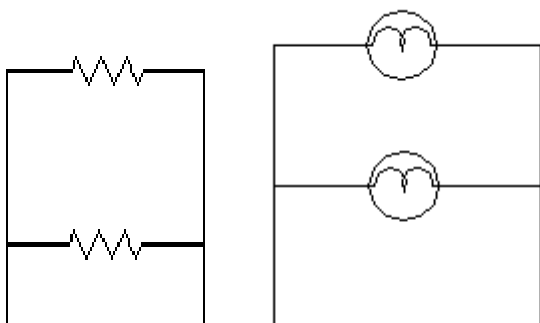
Wires	
Resistors	
Light bulbs	
Switches	
Chemical cell	
Battery circuit with 2 cells wired in series	
Battery circuit with 2 cells wired in parallel.	
AC source (generator)	

Conservation and Transformation of Energy

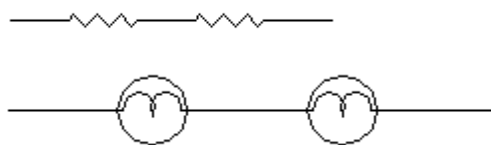
PS-6 The student will demonstrate an understanding of the nature, conservation, and transformation of energy.

It is also essential for students to

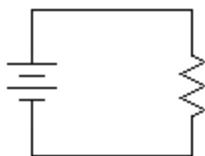
- Represent a circuit with resistors or light bulbs wired in parallel. (See PS-6.9)



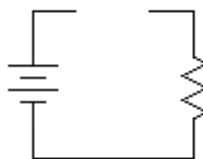
- Represent a circuit with resistors or light bulbs wired in series. (See PS-6.9)



- Represent circuits by drawing a circuit diagram from a circuit which is pictured or described.
- Interpret a circuit diagram.
- Draw an open and a closed circuit. Examples:



Closed circuit with a battery and a resistor



Open circuit with a battery and a resistor

It is not essential for students to represent devices not listed above.

Assessment Guidelines:

The objective of this indicator is to *represent* an electric circuit by drawing a circuit diagram including symbols for resistor, switch, and voltage source, therefore, the primary focus of assessment should be to draw an electric circuit utilizing symbols for the major components of the circuit.

In addition to *represent* students should be able to

- *Interpret* diagrams of electric circuits utilizing symbols for the components of the circuit;
- *Illustrate* circuit diagrams;
- *Exemplify* symbols and diagrams.